



KANSAS CAREER AND COLLEGE READY STANDARDS ASSESSMENT PRECONFERENCE PRESENTATION

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OUTLINE

- Transition from previous Kansas Standards to KCCRS
- Item development process
- Review of example items
- KCCRS content emphasis
- Field testing process
- Questions and answers

TRANSITION FROM KSS TO KCCR STANDARDS

- Previous Kansas Science Standards Assessments for 2014-2015
 - Transition to new standards and assessment
 - Indicators associated with Next Generation Science Standards (NGSS)
- Kansas College and Career Ready (KCCR) Standards for 2015-2016
 - Based upon the NGSS, adopted by KDSE
 - Field testing this year for the 2016-2017 operational assessment
 - Items written to reflect structure and intent of KCCR and NGSS
 - No items from previous 2014-2015 will be used for statistical purposes

DIFFERENCES BETWEEN 2015 AND 2016

- 2015 transitional assessment
 - Half normal items as 2014 with no field test items
 - As closely aligned with KCCR as possible
 - Instructional time minimized upon older standards
- 2016 field test
 - Larger number of items, 60 (5th) and 70 (8th and 11th)
 - No items from 2015 or 2014 will appear on the field test
 - All new items written for the KCCR/NGSS

KCCR STANDARDS ASSESSMENT

- Assessment developed to emphasize
 - 3 Dimensional learning
 - Links among Core Ideas, S&E Practices, and Crosscutting Concepts
 - Importance of applications of science within and between branches of science
 - Engineering incorporated under Physical, Life, Earth, and Space sciences
- Inquiry, History/Nature of Science, and Personal/Environmental Perspectives
 - Incorporated throughout instead of separate categories

ITEM CHARACTERISTICS

- In addition to the body of the item, many other characteristics are important
- Format
- Content/skill difficulty
- Cognitive complexity
- Alignment with standards
- Accessibility for non-traditional students
 - DLM will address 1% population

FORMAT OF ITEMS

- Machine-scorable items
 - Multiple-choice and multiple-select/multiple-choice
 - Testlets
 - Two or more items are associated with a single stimulus
Challenging to maintain independence between items
- Technology enhanced items
 - Matching, matrix, drag-and-drop, Venn diagram, etc.
 - Challenging to make accessible to all students

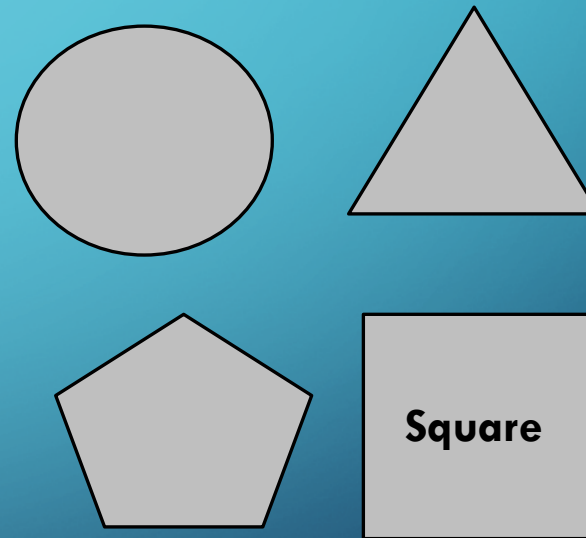
TECHNOLOGY ENHANCED ITEMS

- Technology enhanced (TE) items add functionality to items
- TE items will NOT be used because they are new and shiny
- TE items will assess skill/applications to match student activities
 - Drag-and-drop items on a grid (ordering events, component parts)
 - Matching causes and effects, experiments with data
- New TE functions will be developed over the next year
 - Initially, low number of TE items (~10%)

DRAG AND DROP TE ITEM EXAMPLE

- Click on the name of a shape, drag it to the shape, and drop its name on top of its shape

- **Square**
- Pentagon
- Circle
- Triangle



TYPE OF ITEMS

- Difficulty of items based upon skill and concept
 - Easy, Medium, and Hard
- Complexity of items based upon task (not the same as PLD)
 - Webb's Depth of Knowledge used to organize complexity
 - Level 1: memory recall,
 - Level 2: skill/application,
 - Level 3: critical thinking
 - Level 4: extended thinking
- Items can be easy yet complex or simple yet hard

DEVELOPMENT PROCESS FOR SCIENCE ITEMS

- New item development process
 - Content experts develop rough drafts
 - Rough drafts get first edit
 - Teacher review
 - Revision of items
 - Content, alignment, grade level, clarity, bias, accessibility, etc.
 - Revised items get another edit
 - Field testing
 - Statistical performance of item

ITEM WRITING DEVELOPMENT

- New item development begins with the KCCR
- Previous standards were NOT considered nor were previous assessment items
- Previous items were NOT revised to be included in new assessments
- A target is selected for a new item (chemical reactions, waves, etc.)
 - A topic or disciplinary core idea is selected
 - The associated SEPs and CCCs considered
 - Relatedness between and among PEs considered
- Rough draft of item is written using all

ENGINEERING DESIGN

- Topics for Engineering reflect unique engineering practices but...
- Engineering Design is embedded within other domains
 - Engineering in physical science
 - Engineering in life science and
 - Engineering in Earth and space science
- Item writing for assessment is intended to reflect the standards
 - Engineering items may appear as a stand-alone item or within a testlet format
 - Testlets share a single prompt, called a stimulus (ex. diagram)

STRUCTURE OF KCCR ASSESSMENT ITEMS

- Connections among Core Ideas, SEPs, and CCCs
 - Not all items address the SEP and CCC aspects but many do
 - Testlets used to link content within the topics (Targets)
 - All items will have a DCI at its core though
 - Widgets are too abstract for 5th graders
- PE's are NOT assessed (71 HS PE's, ~60 items), Targets are assessed
 - A list of assessed PE's will not be given
 - The Content Emphasis gives a range of items within the NGSS

EXAMPLES OF ITEM DEVELOPMENT

- Item writing considerations too numerous to cover
 - A few pointers given on cover page
- Examples of a 5th, 8th, and 11th grade item
- Item writing evolves over time with editing and review feedback
- Handout has two versions of the item with feedback from editing or teachers
 - Second item is not a “true” released item – rewritten just for you!
- Original and revised items show how most items are developed
 - Feedback from participating teachers is critical (volunteers?)

OVERVIEW OF DEVELOPMENT PROCESS

- Once items are written, extensive rounds of review begin
 - Alignment to standards properly
 - Proof-reading for grammar
 - References and justifications for scientific accuracy
 - Editing for grade appropriate language/vocabulary
 - Editing for bias and sensitivity
 - Revisions for special considerations (Braille, large-print, Spanish, etc.)
 - In total, ~3-9 month process, not 15-20 minutes

SUGGESTIONS FOR REVIEWING EXAMPLES

- Consider each item individually and together
- Focus on one aspect of the review and revision process
- Did you see what problems were addressed in the revised item?
- Were there problems that were not addressed?
- Is there another item that could added before or after to construct a testlet?
- Alternatives for higher/lower grade levels?
- Is there a revision to further link items across domains (Physical to Life)?



FIND OTHER ATTENDEES TO WORK WITH YOU TO
REVIEW THE EXAMPLE ITEMS

AFTER DISCUSSING ITEM(S) WITHIN GROUP,
COMPARE WITH OTHER GROUPS

TIME: ~15-20 MINUTES



CONTENT EMPHASIS

- Not all items can be evenly distributed among Claims and Targets
 - All areas of the standards are important
 - Are there Claims and Targets that are important for future success?
- Assessment results will be reported at the Target level
 - Ex. 5th grade Structure and Properties of Matter ~22-27%
 - Full content emphasis will be available on CETE and KSDE websites around Nov. 1

CONTENT BY GRADE OVERVIEW

- Grade 5, physical science: 35-40%
- Grade 5, life science: 24-29%
- Grade 5, earth and space science: 33-38%
- Grade 8, physical science: 34-38%
- Grade 8, life science: 31-36%
- Grade 8, earth and space science: 26-32%
- Grade 11, physical science: 27-33%
- Grade 11, life science: 34-40%
- Grade 11, earth and space science: 27-33%

FIELD TESTING

- Valuable tool for determining quality of items before operational use
 - Rating reliability is not an issue, all machine-scored
 - Does the item assess the content knowledge it is intended to assess?
 - Are all of the foils equally plausible for students?
 - Is there any differential item function among different groups of students?
 - Which items are good enough to put into a permanent item pool?
 - What can be learned to direct future item development to address issues?

2016 FIELD TESTING

- There will be NO operational items
 - None from previous KS standards nor current KCCR standards
- Performance of items will be determined statistically
 - Psychometricians will evaluate science items over the summer
 - Statistics will re-direct item development for future field testing
- Poorly performing items will be removed or revised for 2017 assessment
 - Additional fall field testing may be required before spring 2017
 - Embedded field testing after 2017
 - ex. 50+10FT=60 total at 5th grade

The background is a solid teal color. In the four corners, there are decorative white line-art elements resembling circuit traces or neural network connections, with small circles at the end of the lines.

THANK YOU FOR YOUR TIME

QUESTIONS ABOUT THIS YEAR'S OR NEXT YEAR'S
NGSS ASSESSMENT?

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